Welcome to DialogClassic Web(tm)

Dialog level 05.04.04D
Last logoff: 09may05 13:32:19
Logon file405 24may05 15:10:23
                    *** ANNOUNCEMENT ***
                          ***
--UPDATED: Important Notice to Freelance Authors--
See HELP FREELANCE for more information ·
                          ***
NEW FILES RELEASED
***FDAnews (File 182)
***German Patents Fulltext (File 324)

***Beilstein Abstracts (File 393)
***Beilstein Facts (File 390)
***Beilstein Reactions (File 391)
                          ***
RESUMED UPDATING
***Canadian Business and Current Affairs (262)
***CorpTech (559)
                          ***
REMOVED

***Health News Daily (43)
***FDC Reports Gold Sheet/Silver Sheet (184)
***FDC Reports (186/187)   *** DIALOG HOMEBASE(SM) Main Menu ***

 Information:
  1. Announcements (new files, reloads, etc.)
  2. Database, Rates, & Command Descriptions
  3. Help in Choosing Databases for Your Topic
  4. Customer Services (telephone assistance, training, seminars, etc.)
  5. Product Descriptions

 Connections:
  6. DIALOG(R) Document Delivery
  7. Data Star(R)

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    /H = Help   /L = Logoff   /NOMENU = Command Mode

Enter an option number to view information or to connect to an online
 service. Enter a BEGIN command plus a file number to search a database
(e.g., B1 for ERIC).
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B 2, 3, 4
       24may05 15:11:26 User222506 Session D28.1
            $0.00   0.316 DialUnits FileHomeBase
     $0.00   Estimated cost FileHomeBase
     $0.53   INTERNET
     $0.53   Estimated cost this search
     $0.53   Estimated total session cost   0.316 DialUnits

SYSTEM:OS - DIALOG OneSearch
   File   2:INSPEC 1969-2005/May W3
          (c) 2005 Institution of Electrical Engineers
   File   3:INSPEC 1969-1982

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            (c) 1993 Institution of Electrical Engineers
   File   4:INSPEC 1983-2005/May W3
            (c) 2005 Institution of Electrical Engineers

        Set  Items  Description
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S AUTOMOBILE (W) SALE?
            22628  AUTOMOBILE
            39080  SALE?
     S1       24   AUTOMOBILE (W) SALE?
?


S S1 AND ((CLIENT OR CONSUMER OR CUSTOMER) (W) (INVOICE? OR TICKET? OR RECEIPT? OR V
             24  S1
          44452  CLIENT
          33596  CONSUMER
          68704  CUSTOMER
           1760  INVOICE?
           2440  TICKET?
           3074  RECEIPT?
            206  VOUCHER?
             30  ((CLIENT OR CONSUMER) OR CUSTOMER)(W)(((INVOICE? OR
                 TICKET?) OR RECEIPT?) OR VOUCHER?)
     S2        0  S1 AND ((CLIENT OR CONSUMER OR CUSTOMER) (W) (INVOICE? OR
                 TICKET? OR RECEIPT? OR VOUCHER?))
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S  ((CLIENT OR CONSUMER OR CUSTOMER) (W) (INVOICE? OR TICKET? OR RECEIPT? OR VOUCHER
          44452  CLIENT
          33596  CONSUMER
          68704  CUSTOMER
           1760  INVOICE?
           2440  TICKET?
           3074  RECEIPT?
            206  VOUCHER?
     S3       30  ((CLIENT OR CONSUMER OR CUSTOMER) (W) (INVOICE? OR
                 TICKET? OR RECEIPT? OR VOUCHER?))
?


S S3 AND (AUTOMOBILE? OR CAR OR CARS)
             30  S3
          38390  AUTOMOBILE?
          31004  CAR
          14448  CARS
     S4        0  S3 AND (AUTOMOBILE? OR CAR OR CARS)
?


S S1 AND  (INVOICE? OR TICKET? OR RECEIPT? OR VOUCHER?)
             24  S1
           1760  INVOICE?
           2440  TICKET?
           3074  RECEIPT?
            206  VOUCHER?
     S5        0  S1 AND  (INVOICE? OR TICKET? OR RECEIPT? OR VOUCHER?)
?


B 8
        24may05 15:15:29 User222506 Session D28.2
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                 $2.70      0.328 DialUnits File2
           $2.70  Estimated cost File2
                 $1.19      0.144 DialUnits File3
           $1.19  Estimated cost File3
                 $2.05      0.249 DialUnits File4
           $2.05  Estimated cost File4
                 OneSearch, 3 files,  0.721 DialUnits FileOS
           $1.33  INTERNET
           $7.27  Estimated cost this search
           $7.80  Estimated total session cost   1.037 DialUnits

File    8:Ei Compendex(R) 1970-2005/May W3
        (c) 2005 Elsevier Eng.  Info. Inc.

        Set  Items  Description
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S AUTOMOBILE (W) SALE?
           38840  AUTOMOBILE
           23656  SALE?
      S1      12  AUTOMOBILE (W) SALE?
?


S  ((CLIENT OR CONSUMER OR CUSTOMER) (W) (INVOICE? OR TICKET? OR RECEIPT? OR VOUCHER
           12819  CLIENT
           17017  CONSUMER
           32644  CUSTOMER
             193  INVOICE?
             891  TICKET?
             925  RECEIPT?
              49  VOUCHER?
      S2      12  ((CLIENT OR CONSUMER OR CUSTOMER)  (W)  (INVOICE? OR
                  TICKET? OR RECEIPT? OR VOUCHER?))
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S S1 AND S2
              12  S1
              12  S2
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              12  S1
             193  INVOICE?
             891  TICKET?
             925  RECEIPT?
              49  VOUCHER?
      S4       0  S1 AND  (INVOICE? OR TICKET? OR RECEIPT? OR VOUCHER?)
?


B 9
      24may05 15:18:02 User222506 Session D28.3
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        $3.80  Estimated cost File8
        $0.80  INTERNET
        $4.60  Estimated cost this search
       $12.40  Estimated total session cost   1.531 DialUnits

File    9:Business & Industry(R) Jul/1994-2005/May 23
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          (c) 2005  The Gale Group
 *File    9: File 9 has been reloaded and accession numbers have changed.

       Set  Items  Description
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S AUTOMOBILE (W) SALE?
            26880  AUTOMOBILE
           846563  SALE?
     S1      360   AUTOMOBILE (W) SALE?
?


S S1 AND ((CLIENT OR CONSUMER OR CUSTOMER) (W) (INVOICE? OR TICKET? OR RECEIPT? OR V
            360  S1
          94009  CLIENT
         252671  CONSUMER
         213948  CUSTOMER
           5518  INVOICE?
          40397  TICKET?
          13145  RECEIPT?
           3531  VOUCHER?
            107  ((CLIENT OR CONSUMER) OR CUSTOMER)(W)(((INVOICE? OR
                 TICKET?) OR RECEIPT?) OR VOUCHER?)
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                 TICKET? OR RECEIPT? OR VOUCHER?))
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S S1 AND   (INVOICE? OR TICKET? OR RECEIPT? OR VOUCHER?)
            360  S1
           5518  INVOICE?
          40397  TICKET?
          13145  RECEIPT?
           3531  VOUCHER?
     S3      12  S1 AND   (INVOICE? OR TICKET? OR RECEIPT? OR VOUCHER?)
?


S  S3 AND (CLIENT OR CONSUMER OR CUSTOMER)
             12  S3
          94009  CLIENT
         252671  CONSUMER
         213948  CUSTOMER
     S4       7  S3 AND (CLIENT OR CONSUMER OR CUSTOMER)
?


S S4 AND (HISTORY (W) (SALE? OR PURCHAS?))
              7  S4
          67673  HISTORY
         846563  SALE?
         348149  PURCHAS?
             64  HISTORY(W)(SALE? OR PURCHAS?)
     S5       0  S4 AND (HISTORY (W) (SALE? OR PURCHAS?))
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S S4 AND HISTORY
              7  S4
          67673  HISTORY
     S6       2  S4 AND HISTORY
?
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T S6/FULL/1-2

6/9/1
DIALOG(R)File 9:Business & Industry(R)
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02888405 Supplier Number: 95528174 (THIS IS THE FULLTEXT)
Chapter 5 Careers in retail.

Plunkett's Retail Industry Almanac, p 66
January 2001
DOCUMENT TYPE: Book; Industry Overview; Overview/Profile (United States)
LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 8799

TEXT:
The following industry-by-industry career outlook is based largely on
reports from the U.S. Department of Labor. However, many of the
government's comments have been restated to reflect the views and opinions
of the editors of Plunkett's Retail Industry Almanac 2000-2001. For the
official government outlook, see Occupational Outlook Handbook 2000-01,
U.S. Department of Labor, Bureau of Labor Statistics, and Occupational
Projections and Training Data, U.S. Department of Labor Statistics.

Cashiers
Significant Points

* Good employment opportunities are expected due to the large number who
leave this occupation each year.

* The occupation offers an above average number of opportunities for
part-time work.

Nature of the Work

Supermarkets, department stores, gasoline service stations, movie theaters,
restaurants and many other businesses employ cashiers to register the sale
of their merchandise. Most cashiers total bills, receive money, make
change, fill out charge forms and give receipts.

Although specific job duties vary by employer, cashiers are usually
assigned to a register at the beginning of their shifts and given drawers
containing "banks" of money. They must count their banks to ensure that
they contain the correct amount of money and that there are adequate
supplies of change. At the end of their shifts, they once again count the
drawers' contents and compare the totals with sales data. An occasional
shortage of small amounts may be overlooked, but in many establishments,
repeated shortages are grounds for dismissal.

In addition to counting drawers at the end of their shifts, cashiers
usually separate charge forms, return slips, coupons and any other non-cash
items.

Cashiers also handle returns and exchanges and must ensure that merchandise
is in good condition and determine where and when it was purchased and what
type of payment was used.

After entering charges for all items and subtracting the value of any
coupons or special discounts, cashiers total the bill and take payment.

Acceptable forms of payment usually include cash, personal check, charge, and, increasingly, debit cards. Cashiers must know the store's policies and procedures for accepting each type of payment. For checks and charges, they may have to request additional identification from the customer or call in for an authorization. When the sale is complete, cashiers issue a receipt to the customer and return the appropriate change. They may also wrap or bag the purchase.

Cashiers have traditionally totaled customers' purchases using cash registers by manually entering the price of each product bought. However, most establishments are now using scanners and computers to total purchases. In a store with scanners, a cashier passes a product's Universal Product Code (UPC) over the scanning device, which transmits the code number to a computer. The computer identifies the item and its price. In other establishments, cashiers manually enter codes into computers, and descriptions of the items and their prices appear on the screen.

Depending on the type of establishment, cashiers may have other duties as well. In many supermarkets, for example, cashiers weigh produce and bulk food as well as return unwanted items to the shelves. In convenience stores, cashiers may be required to know how to use a variety of machines other than cash registers and how to furnish money orders. Operating ticket-dispensing machines and answering customers' questions are common duties for cashiers who work at movie theaters and ticket agencies.

Working Conditions

More than one-half of all cashiers are on part-time schedules. Hours of work often vary depending on the needs of the employer. Generally, cashiers are expected to work weekends, evenings and holidays to accommodate customers' needs. However, because of this, many employers offer flexible schedules. For example, full-time workers who work on weekends may receive time off during the week. Because the holiday season is the busiest time for most retailers, many employers restrict the use of vacation time from Thanksgiving through the beginning of January.

Most cashiers work indoors, usually standing in booths or behind counters. In addition, they are often unable to leave their workstations without supervisory approval because they are responsible for large sums of money. The work of cashiers can be very repetitious, but improvements in workstation design are being made to combat problems caused by repetitive motion.

Employment

Cashiers hold about 3.2 million jobs. Although employed in nearly every industry, nearly one-third of all jobs are in supermarkets and other food stores. Department stores, gasoline service stations, drug stores and other retail establishments also employ large numbers of these workers. Because cashiers are needed in businesses and organizations of all types and sizes, job opportunities are found throughout the country.

Training, Other Qualifications and Advancement
Cashier jobs tend to be entry-level positions requiring little or no previous work experience. Although there are no specific educational requirements, employers filling full-time jobs often prefer applicants with high school diplomas.

Nearly all cashiers are trained on the job. In small firms, beginners are often trained by an experienced worker. The first day is usually spent

observing the operation and becoming familiar with the store's equipment, policies and procedures. After this, trainees are assigned to a register, frequently under the supervision of a more experienced worker. In larger firms, before being placed at cash registers, trainees first spend several days in classes. Topics typically covered include a description of the industry and the company, instruction on the store's policies, procedures, equipment operation and security.

Training for experienced workers is not common, except when new equipment is introduced or when procedures change. In these cases, training is given on the job by the employer or a representative of the equipment manufacturer.

Persons who want to become cashiers should be able to do repetitious work accurately. They also need basic arithmetic skills and good manual dexterity, and, because they deal constantly with the public, cashiers should be neat in appearance and able to deal tactfully and pleasantly with customers. In addition, some firms seek persons who have operated specialized equipment or who have business experience such as typing, selling or handling money.

Advancement opportunities for cashiers vary. For those working part-time, promotion may be to a fulltime position. Others advance to head cashier or cash office clerk. In addition, this job offers a good opportunity to learn an employer's business and can serve as a stepping stone to a more responsible position.

Job Outlook

As in the past, employment opportunities for cashiers are expected to continue to be good because of the many job openings created each year due to the need to replace the large number of workers who transfer to other occupations or leave the labor force.

Cashier employment is expected to increase about 10-20% for all occupations through the year 2008 due to expanding demand for goods and services by a growing population. Traditionally, workers under the age of 25 have filled about half of the openings in this occupation. Recently, some establishments have begun hiring elderly and disabled persons as well to fill some of their job openings. Opportunities for part-time work are expected to continue to be excellent.

Earnings

Cashiers' earnings range from the minimum wage to several times that amount. Wages tend to be higher in areas where there is intense competition for workers. In establishments covered by Federal law, those beginning at the minimum wage earn $6.15 an hour. In some States, the minimum wage in many establishments is governed by State law, and where State minimums are higher, the establishment must pay at least that amount.

Median weekly earnings for full-time cashiers are $247. The middle 50 percent earn between $198 and $328; 10 percent earn below $165; and 10 percent earn above $486.

Benefits for full-time cashiers tend to be better than for those working part-time. Cashiers often receive health and life insurance as well as paid vacations. In addition, those working in retail establishments often receive discounts on purchases, and cashiers in restaurants may receive free or lowcost meals. Some employers also offer employee stock option

plans.

Related Occupations

Cashiers accept payment for the purchase of goods and services. Other
workers with similar duties include food counter clerks, bank tellers,
counter and rental clerks, postal service clerks and sales clerks.

Sources of Additional Information

General information on retailing is available from:

* National Retail Federation, 325 7th St. NW, Suite 1000, Washington, DC
20004-2802. www.nrf.com

* Food Marketing Institute, 800 Connecticut Ave. NW, Washington, DC 20006.
www.fmi.org

For information about employment opportunities as a cashier, contact:

* National Association of Convenience Stores, 1605 King St., Alexandria, VA
22314-2792.

* Service Station Dealers of America, 9420 Annapolis Rd., Suite 307,
Lanham, MD 20706. www.ssda-at.org

* International Mass Retail Association, 1700 N. Moore St., Suite 2250,
Arlington, VA 22209-1998. www.imra.org

* United Food and Commercial Workers International Union, Education Office,
1775 K St. NW, Washington, DC 20006-1502. www.ufcw.org

Counter and Rental Clerks

Significant Points

* Jobs are primarily entry level and require little or no experience and
little formal education.

* Part-time employment opportunities are expected to be plentiful.

Nature of the Work
Whether renting video tapes or air compressors, dropping off clothes to be
dry-cleaned or appliances to be serviced, counter and rental clerks are
relied on to handle transactions efficiently. Although specific duties vary
by establishment, counter and rental clerks are responsible for answering
questions involving product availability, cost and rental provisions.
Counter and rental clerks also take orders, calculate fees, receive
payments and accept returns.

Regardless of where they work, counter and rental clerks must be
knowledgeable about the company's services, policies and procedures.
Depending on the type of establishment, counter and rental clerks use
their special knowledge to give advice on a wide variety of products and
services, which may range from hydraulic tools to shoe repair. For example,
in the car rental industry, clerks inform customers of features of
different types of automobiles available and daily and weekly rental costs,
ensure that customers meet age and other requirements, and indicate when
and in what condition cars must be returned. In dry cleaning
establishments, counter clerks inform customers when items will be ready.

When taking orders, counter and rental clerks use various types of equipment. In some establishments, clerks write out tickets and order forms. However, computers and bar code scanners are quickly becoming the norm. Most of these computer systems are user friendly and usually require very little data entry. Scanners "read" the product code and display a description of the item on a computer screen. Clerks must insure, however, that the data on the screen matches the actual product.

Working Conditions

Because firms employing counter and rental clerks generally operate at the convenience of customers, clerks often work night and weekend hours. However, because of this, many employers offer flexible schedules. Some counter and rental clerks work 40-hour weeks, but over one-half are on part-time schedules, usually during rush periods, such as weekends, evenings and holidays.

Working conditions are usually pleasant; most stores and service establishments are clean, well-lit and temperature controlled. However, clerks are on their feet much of the time and may be confined behind a small counter area. This job requires constant interaction with the public and can be taxing, especially during busy periods.

Employment
Counter and rental clerks hold 4699,000 jobs. About one of every four clerks works for a video tape rental establishment. Other large employers include laundries or dry cleaners, automobile rental firms, equipment rental firms and miscellaneous entertainment and recreation establishments.

Counter and rental clerks are employed throughout the country but are concentrated in metropolitan areas where personal services and renting and leasing services are in greater demand.

Training, Other Qualifications and Advancement

Counter and rental clerk jobs are primarily entry level and require little or no experience and little formal education. However, many employers prefer those with at least a high school diploma.

In most companies, counter and rental clerks are trained on the job, sometimes through the use of video tapes, brochures and pamphlets. Clerks usually learn how to operate the equipment and become familiar with the establishment's policies and procedures under the observation of a more experienced worker. However, some employers have formal classroom training programs that last from a few hours to a few weeks. Topics covered in this training usually include a description of the industry, the company and its policies and procedures, equipment operation, sales techniques and customer service. Counter and rental clerks must also become familiar with the different products and services rented or provided by their company in order to give customers the best possible service.

Counter and rental clerks should enjoy working with people and should have the ability to deal tactfully with difficult customers. In addition, good oral and written communication skills are essential.

Advancement opportunities depend on the size and type of company. Many establishments that employ counter or rental clerks tend to be small businesses, making advancement difficult. In larger establishments with a corporate structure, jobs as counter and rental clerks offer good

opportunities for workers to learn about their company's products and business practices. These jobs can act as steppingstones to more responsible positions due to the commonplace practice of advancing counter and rental clerks to assistant managerial positions.

In certain industries such as equipment repair, counter and rental jobs may be an additional or alternate source of income for workers who are unemployed or entering semi-retirement. For example, retired mechanics could prove invaluable at tool rental centers because of their relevant knowledge.

Job Outlook

Employment in this occupation is expected to increase 21-35% for all occupations through the year 2008 due to anticipated employment growth in the industries where they are concentrated--business services, automotive rentals and amusement and recreation services. Some openings due to growth are expected to meet consumers' anticipated increased acceptance of renting items instead of buying them. Despite this, most job openings will arise from the need to replace experienced workers who transfer to other occupations or leave the labor force. Part-time employment opportunities are expected to be plentiful.

Earnings

Counter and rental clerks typically start at minimum wage, which, in establishments covered by Federal law, is $6.15 an hour. In areas where there is intense competition for workers, however, wages are often higher. In addition to wages, some counter and rental clerks receive commissions based on the number of contracts they complete or services they sell. Full-time workers typically receive health and life insurance as well as paid vacations and sick leave. Benefits for counter and rental clerks who work part-time tend to be significantly less than for those who work full-time. Many companies offer discounts to both full- and part-time employees on the services they provide.

Related Occupations

Counter and rental clerks take orders and receive payment for services rendered. Other workers with similar duties include cashiers, retail sales workers, food counter clerks, postal service clerks and bank tellers.

Sources of Additional Information

For general information on employment in the equipment rental industry, contact:

* American Rental Association, 1900 19th St., Moline, IL 61265. www.ararental.org

For more information about the work of counter clerks in dry cleaning and laundry establishments, contact:
* International Fabricare Institute, 12251 Tech Road, Silver Spring, MD 20904. www.ifi.org

For general information on employment in the rent-to-own industry, contact:

* Association of Progressive Rental Organizations, 9015 Mountain Ridge Dr., Suite 220, Austin, TX 78759. www.apro-rto.com

Purchasers and Buyers

Significant Points

* Computerization has reduced the demand for lower-level buyers.

* About one-half were employed in wholesale or retail trade.

Nature of the Work

Purchasers and buyers seek to obtain the highest quality merchandise at the lowest possible purchase cost for their employers. (In general, purchasers buy goods and services for the use of their company or organization, whereas buyers buy items for resale.) They determine which commodities or services are best, choose the suppliers of the product or service, negotiate the lowest price and award contracts that ensure the correct amount of the product or service is received at the appropriate time. In order to accomplish these tasks successfully, purchasers and buyers study sales records and inventory levels of current stock, identify foreign and domestic suppliers and keep abreast of changes affecting both the supply of and demand for products and materials for which they are responsible. Purchasers and buyers evaluate suppliers based upon price, quality, service support, availability, reliability and selection. To assist them in their search, they review listings in catalogs, industry periodicals, directories and trade journals, research the reputation and history of the suppliers, and advertise anticipated purchase actions in order to solicit bids. Also, meetings, trade shows, conferences and visits to suppliers' plants and distribution centers provide opportunities for purchasers and buyers to examine products and assess a supplier's production and distribution capabilities as well as to discuss other technical and business considerations that influence the purchasing decision. Once all the necessary information on suppliers is gathered, orders are placed and contracts are awarded to those suppliers who meet the purchasers' needs. Other specific job duties and responsibilities vary by employer and by the type of commodities or services to be purchased.
Purchasing professionals employed by government agencies or manufacturing firms are usually called purchasing directors, managers or agents, buyers or industrial buyers or contract specialists. These workers acquire product materials and intermediate goods, machines, supplies, services and other materials used in the production of a final product. Some purchasing managers specialize in negotiating and supervising supply contracts and are called contract or supply managers. Purchasing agents and managers obtain items ranging from raw materials, fabricated parts, machinery and office supplies to construction services and airline tickets. The flow of work, or even the entire production process, can be slowed or halted if the right materials, supplies or equipment are not on hand when needed. In order to be effective, purchasers and buyers must have a working technical knowledge of the goods or services to be purchased.

In large industrial organizations, a distinction is often drawn between the work of a buyer or purchasing agent and that of a purchasing manager. Purchasing agents and buyers typically focus on routine purchasing tasks, often specializing in a commodity or group of related commodities, for example, steel, lumber, cotton, fabricated metal products or petroleum products. This usually requires the purchaser to track such things as market conditions, price trends or future markets. Purchasing managers usually handle more complex or critical purchases and may supervise a group of purchasing agents handling other goods and services. Whether a person is titled purchasing agent, buyer or manager depends more on specific industry and employer practices than on specific job duties.

Changing business practices have altered the traditional roles of purchasing professionals in many industries. For example, manufacturing companies increasingly involve purchasing professionals at most stages of product development due to the ability to forecast a part's or material's cost, availability and suitability for its intended purpose. Furthermore, potential problems with the supply of materials may be avoided by consulting the purchasing department in the early stages of product design.

Businesses entering into integrated supply contracts is another new practice. These contracts increase the importance of supplier selection due to larger-in-scope and longer-in-duration agreements. A major responsibility of most purchasers is to work out problems that may occur with a supplier because the success of the relationship directly affects the buying firm's performance.

Purchasing professionals often work closely with other employees in their own organization when deciding on purchases, an arrangement sometimes called team buying. For example, purchasing professionals may discuss the design of custom-made products with company design engineers, quality problems in purchased goods with quality assurance engineers and production supervisors, or shipment problems with managers in the receiving department before submitting an order.

Contract specialists and managers in various levels of government award contracts for an array of items, including office and building supplies, services for the public and construction projects. They typically use sealed bids but sometimes use negotiated agreements for complex items. Increasingly, purchasing professionals in government are placing solicitations for and accepting bids through the Internet. Government purchasing agents and managers must follow strict laws and regulations in their work. These legal requirements are occasionally changed, so agents and contract specialists must stay informed about the latest regulations and their applications.

Other professionals who buy finished goods for resale are commonly referred to as "buyers" or "merchandise managers." Wholesale and retail buyers are an integral part of a complex system of distribution and merchandising. Wholesale buyers purchase goods directly from manufacturers or from other wholesale firms for resale to retail firms, commercial establishments, institutions and other organizations. In retail firms, buyers purchase goods from wholesale firms or directly from manufacturers for resale to the public. Buyers largely determine which products their establishment will sell. Therefore, it is essential that they have the ability to accurately predict what will appeal to consumers. They must constantly stay informed of the latest trends because failure to do so could jeopardize profits and the reputation of their company. Buyers also follow ads in newspapers and other media to check competitors' sales activities and watch general economic conditions to anticipate consumer buying patterns. Buyers working for large and medium-sized firms usually specialize in acquiring one or two lines of merchandise, whereas buyers working for small stores may purchase their complete inventory.

The use of private-label merchandise and the consolidation of buying departments have increased the responsibilities of retail buyers. Private-label merchandise, produced for a particular retailer, requires buyers to work closely with vendors to develop and obtain the desired product. The downsizing and consolidation of buying departments is also increasing the demands placed on buyers because, although the amount of work remains unchanged, there are fewer people needed to accomplish it.

The result is an increase in workloads and levels of responsibility.

Many merchandise managers assist in the planning and implementation of sales promotion programs. Working with merchandising executives, they determine the nature of the sale and purchase accordingly. They also work with advertising personnel to create an ad campaign. For example, merchandise managers may determine the media in which the advertisement will be placed--newspapers, direct mail, television or some combination of these. In addition, merchandising managers often visit the selling floor to ensure that the goods are properly displayed. Often, assistant buyers are responsible for placing orders and checking shipments. Computers have a major effect on the jobs of purchasers and buyers. In manufacturing and service industries, computers handle most of the more routine tasks, enabling purchasing professionals to concentrate mainly on the analytical aspects of the job. Computers are used to obtain up-to-date product and price listings, track inventory levels, process routine orders and help determine when to make purchases. Computers also maintain bidders' lists, record the history of supplier performance and issue purchase orders.

Computerized systems have dramatically simplified many routine buying functions and improved the efficiency of determining which products are selling. For example, cash registers connected to computers, known as point-of-sale terminals, allow organizations to maintain centralized, up-to-date sales and inventory records. This information can then be used to produce weekly sales reports that reflect the types of products in demand. Buyers also use computers to gain instant access to the specifications for thousands of commodities, inventory records and their customers' purchase records. Some firms are linked with manufacturers or wholesalers by electronic purchasing systems. These systems speed selection and ordering and provide information on availability and shipment, allowing buyers to better concentrate on the selection of goods and suppliers.

Working Conditions

Most purchasers and buyers work in comfortable, well-lit offices at stores, corporate headquarters, or production or service facilities. They frequently work more than a 40-hour week because of special sales, conferences or production deadlines. Evening and weekend work is common. For those working in retail trade, this is especially true prior to holiday seasons. Consequently, many retail firms discourage the use of vacation time from late November until early January.

Buyers and merchandise managers often work under great pressure because wholesale and retail stores are so competitive. Buyers need physical stamina to keep up with the fast-paced nature of their work.

Many purchasers and buyers spend at least several days a month traveling. Purchasers for worldwide manufacturing companies, large retailers and buyers of high fashion may travel outside the United States.

Employment

Purchasers and buyers hold about 547,000 jobs. Purchasing agents and purchasing managers each account for slightly more than one-third of the total, while buyers account for the remainder.

About one-half of all purchasers and buyers work in wholesale and retail trade establishments such as grocery or department stores, and another one-fourth work in manufacturing. The remainder work mostly in service establishments or different levels of government.

Training, Other Qualifications and Advancement

Qualified persons usually begin as trainees, purchasing clerks, expediters, junior buyers or assistant buyers. Retail and wholesale firms prefer to hire applicants who are familiar with the merchandise they sell as well as with wholesaling and retailing practices. Some retail firms promote qualified employees to assistant buyer positions; others recruit and train college graduates as assistant buyers. Most employers use a combination of methods.

Educational requirements tend to vary with the size of the organization. Large stores and distributors, especially those in wholesale and retail trade, prefer applicants who have completed a bachelor's degree program with a business emphasis. Many manufacturing firms prefer applicants with a bachelor's or master's degree in business, economics or technical training, such as engineering or one of the applied sciences, and tend to put a greater emphasis on formal training.

Regardless of academic preparation, new employees must learn the specifics of their employer's business. Training periods vary in length, with most lasting one to five years. In wholesale and retail establishments, most trainees begin by selling merchandise, supervising sales workers, checking invoices on material received and keeping track of stock on hand, although widespread use of computers has simplified some of these tasks. As they progress, retail trainees are given more buying-related responsibilities. In manufacturing, new purchasing employees are often enrolled in company training programs and spend a considerable amount of time learning about company operations and purchasing practices. They work with experienced purchasers to learn about commodities, prices, suppliers and markets. In addition, they may be assigned to the production planning department to learn about material requirements systems and inventory systems the company uses to keep production and replenishment functions working smoothly.

Because the procurement process is becoming more automated, it is extremely important for purchasers and buyers to be computer literate, including knowing how to use word processing and spreadsheet software. Other important qualities include the ability to analyze technical data in suppliers' proposals, good communicating, negotiating and math skills, knowledge of supply chain management and the ability to perform financial analyses.

Persons who wish to become wholesale or retail buyers should be good at planning and decision-making and have an interest in merchandising. Anticipating consumer preferences and ensuring that goods are in stock when they are needed requires resourcefulness, good judgment and self-confidence. Buyers must be able to make decisions quickly and take risks. Marketing skills and the ability to identify products that will sell are also very important. Employers often look for leadership ability because buyers spend a large portion of their time supervising assistant buyers and dealing with manufacturers' representatives and store executives.
Experienced buyers may advance by moving to a department that manages a larger volume or by becoming a merchandise manager. Others may go to work in sales for a manufacturer or wholesaler.

An experienced purchasing agent or buyer may become an assistant purchasing manager in charge of a group of purchasing professionals before advancing to purchasing manager, supply manager or director of materials management. At the top levels, duties may overlap into other management functions such

as production, planning and marketing.

Regardless of industry, continuing education is essential for advancement. Many purchasers participate in seminars offered by professional societies and take college courses in purchasing. Although no national standard exists, professional certification is becoming increasingly important.

In private industry, the recognized marks of experience and professional competence are the designations Accredited Purchasing Practitioner (APP) and Certified Purchasing Manager (CPM), conferred by the National Association of Purchasing Management, and Certified Purchasing Professional (CPP), conferred by the American Purchasing Society. In Federal, State and local government, the indications of professional competence are the designations Certified Professional Public Buyer (CPPB) and Certified Public Purchasing Officer (CPPO), conferred by the National Institute of Governmental Purchasing.

As more materials purchasing is conducted on a long-term basis, both private and public purchasing professionals are specializing in the contractual aspects of purchasing. The National Contract Management Association confers the designations Simplified Acquisition Specialists (SAS), Certified Associate Contract Manager (CACM) and Certified Professional Contract Manager (CPCM). These designations primarily apply to contract managers in the Federal Government and its suppliers.

Most designations are awarded only after work-related experience and education requirements are met and writ   ten or oral exams are completed successfully.

Job Outlook

Employment of purchasers and buyers is expected to increase up to 9% for all occupations through the year 2008. Demand for these workers will not keep pace with the rising level of economic activity because the increasing use of computers has allowed much of the paperwork typically involved in ordering and procuring supplies to be eliminated, reducing the demand for lower-level buyers who traditionally perform these duties. Also, limited sourcing and long-term contracting have allowed companies to negotiate with fewer suppliers less frequently. Consequently, most job openings will result from the need to replace workers who transfer to other occupations or leave the labor force.

In retail trade, mergers and acquisitions have forced the consolidation of buying departments, eliminating jobs. In addition, larger retail stores are removing their buying departments from geographic markets and centralizing them at their headquarters, eliminating more jobs.

The increased use of credit cards by some employees to purchase supplies without using the services of the procurement or purchasing office, combined with the growing number of buys being made electronically, will restrict demand of purchasing agents within governments and many manufacturing firms.

Persons who have a bachelor's degree in business should have the best chance of obtaining a buyer job in wholesale or retail trade or within government. A bachelor's degree, combined with industry experience and/or knowledge of a technical field, will be an advantage for those interested in working for a manufacturing or industrial company. A master's degree in business or public administration is usually required by government agencies and larger companies for top-level purchasing positions.

Earnings

Median annual earnings of purchasers and buyers is $31,560. The middle 50 percent earn between $23,490 and $42,920.The lowest 10 percent earn less than $17,730, while the top 10 percent earn more than $66,480. Merchandise managers and purchasing managers generally earn higher salaries than buyers or agents. As a general rule, those with the most education in their field have the highest incomes.

The average annual salaries for purchasing agents and contract specialists in the Federal Government in 2000 were about $30,422 and $54,176 respectively. Purchasers and buyers receive the same benefits package as their coworkers, frequently including vacations, sick leave, life and health insurance and pension plans. In addition to standard benefits, retail buyers often earn cash bonuses based on their performance and may receive discounts on merchandise bought from the employer.

Related Occupations
Workers in other occupations who need a knowledge of marketing and the ability to assess demand are retail sales workers, sales managers, marketing and advertising managers, manufacturers and wholesale sales representatives, insurance sales agents, services sales and procurement services representatives, and materials and traffic managers.

Sources of Additional Information

Further information about education, training, and/or certification for purchasing careers is available from:

* American Purchasing Society, 430 W. Downer Pl., Aurora, IL 60506. www.american-purchasing.com

* National Association of Purchasing Management, Customer Service, 2055 East Centennial Circle, P.O. Box 22160, Tempe, AZ 85285-2169. www.napm.org

* National Institute of Governmental Purchasing, Inc., 151 Spring St., Herndon, VA 20170. www.nigp.org

* National Contract Management Association, 1912 Woodford Rd., Vienna, VA 22182. www.ncmahq.org
* Federal Acquisition Institute (MVI), Office of Acquisition Policy, General Services Administration, 18th F Street NW, Room 4017, Washington, DC 20405. www.gsa.gov/staff/v/training.htm

General information on buying careers in retail establishments is available from:

* National Retail Federation, 325 7th St. NW, Suite 1000, Washington, DC 20004. www.nrf.com

Retail Sales Worker Supervisors and Managers

Significant Points

* Candidates who have experience as retail sales workers, cashiers or customer service workers should have the best opportunities.

* Work schedules may be irregular and often include evening and weekend work.

* Increasingly, a post-secondary degree is needed for advancement into
upper management positions.
Nature of the Work

In every one of the thousands of retail stores across the country, there
is at least one retail sales worker supervisor or manager. Because the
retail trade industry provides goods and services directly to customers,
the retail supervisor or manager is responsible for ensuring that customers
receive satisfactory service and quality goods. They also answer customers'
inquiries and handle complaints.

Retail supervisors and managers oversee the work of sales associates and
cashiers, as well as customer service, stock, inventory and grocery clerks.
They are responsible for interviewing, hiring and training employees, as
well as preparing work schedules and assigning workers to specific duties.
The responsibilities of retail sales worker supervisors and management vary
depending on the size and type of establishment as well as the level of
management. As the size of retail stores and the types of goods and
services increase, these workers increasingly specialize in one department
or one aspect of merchandising. Larger organizations tend to have many
layers of management. As in other industries, supervisory-level retail
managers usually report to their mid-level counterparts who, in turn,
report to top-level managers. Small stores and stores that carry
specialized merchandise typically have fewer levels of management.
Supervisory-level retail managers, often referred to as department
managers, provide day-to-day oversight of individual departments such as
shoes, cosmetics, or housewares in large department stores; produce and
meat in grocery stores and sales in automotive dealerships. Department
managers are commonly found in large retail stores. These managers
establish and implement policies, goals, objectives and procedures for
their specific departments, coordinate activities with other department
heads and strive for smooth operations within their departments. They
supervise employees who price and ticket goods and place them on display,
clean and organize shelves, displays and inventory in stockrooms and
inspect merchandise to ensure that none is outdated. Department managers
also review inventory and sales records, develop merchandising techniques,
coordinate sales promotions and may greet and assist customers and promote
sales and good public relations.

In small or independent retail stores, retail sales worker supervisors and
managers not only directly supervise sales associates, but are also
responsible for the operation of the entire store. In these instances, they
may be called store managers. Some are also store owners.

Working Conditions
Most retail sales worker supervisors and managers have offices within the
stores. Although some time is spent in the office completing merchandise
orders or arranging work schedules, a large portion of their workday is
spent on the sales floor.

Work hours of supervisors and managers vary greatly among retail
establishments, with work schedules usually depending on consumers' needs.
Most managers and supervisors work 40 hours or more a week. This is
especially true during holidays, busy shopping hours and seasons, sales and
when inventory is taken. Managers and supervisors are expected to work
evenings and weekends but are usually compensated by getting a weekday off.
Hours can change weekly, and managers may sometimes have to report to work
on short notice, especially when employees are absent. Independent owners
can often set their own schedules, but hours must usually be convenient to

customers.

Employment

Retail sales worker supervisors and managers who work in retail trade hold
about 1.7 million wage and salary jobs. In addition, there are thousands of
self-employed retail sales managers, mainly store owners. Although managers
are found throughout the retail trade industry, establishments that employ
the most are grocery, department and clothing and accessory stores.

Training, Other Qualifications and Advancement

Knowledge of management principles and practices, often an essential
requirement for a management position in retail trade, is usually acquired
through work experience. Many supervisors and managers begin their careers
on the sales floor as sales clerks, cashiers or customer service workers.
In these positions, they learn merchandising, customer service and the
basic policies and procedures of the store.

The educational background of retail sales worker supervisors and managers
varies widely. Regardless of the education received, business courses,
including accounting, administration, marketing, management and sales, as
well as courses in psychology, sociology and communication are helpful.
Supervisors and managers must increasingly be computer literate since cash
registers and inventory control systems are computerized.

Most supervisors and managers who have postsecondary education hold
associate or bachelor's degrees in liberal arts, social science, business
or management. To gain experience, many postsecondary students participate
in internship programs that are usually planned between individual schools
and retail firms.

Once on the job, the type and amount of training available for supervisors
and managers varies from store to store. Many national chains have formal
training programs for management trainees that include both classroom and
in-store training. Training may last from one week to one year or more, as
many retail organizations require their trainees to gain experience during
all shopping seasons. Other retail organizations may not have formal
training programs.

Ordinarily, classroom training includes such topics as interviewing and
customer service skills, employee and inventory management and scheduling.
Management trainees may be placed in one specific department while training
on the job, or they may be rotated through several departments to gain a
well-rounded knowledge of the store's operation. Training programs for
franchises are generally extensive, covering all functions of the company's
operation, including promotion, marketing, management, finance, purchasing,
product preparation, human resource management and compensation. College
graduates can usually enter management training programs directly.

Retail sales worker supervisors and managers must get along with all types
of people. They need initiative, self-discipline, good judgment and
decisiveness. Patience and a mild temperament are necessary when dealing
with demanding customers. They must also be able to motivate, organize and
direct the work of subordinates and communicate clearly and persuasively
with customers and other managers.

Individuals who display leadership and team building skills,
self-confidence, motivation and decisiveness become candidates for
promotion to assistant store manager or store manager. Increasingly, a

post-secondary degree is needed for advancement, because employers view it as a sign of motivation and maturity--qualities deemed important for promotion to more responsible positions. In many retail establishments, managers are promoted from within the company. In small retail establishments where the number of positions is limited, advancement to a higher management position may come slowly. Large establishments most often have extensive career ladder programs and may offer managers the opportunity to transfer to another store in the chain or to the central office if an opening occurs. Promotions may occur more quickly in large establishments, but relocation every several years may also be necessary for advancement. Within a central office, sales supervisors and managers can become marketing, advertising or public relations managers. These managers coordinate marketing plans, monitor sales and propose advertisements and promotions. Supervisors and managers can also become purchasers or buyers who purchase goods and supplies for their organization or for resale.

Some supervisors and managers who have worked in the retail industry for a long time decide to open their own stores. However, retail trade is highly competitive, and although many independent retail owners succeed, some fail to cover expenses and eventually go out of business. To prosper, retail owners usually need good business sense and strong customer service and public relations skills.

Job Outlook

Because most jobs for retail sales worker supervisors and managers do not require postsecondary education, competition is expected for jobs with the most attractive earnings and working conditions. Candidates who have retail experience will have the best opportunities.

Employment of wage and salary retail sales worker supervisors and managers is expected to increase up to 9% for all occupations through the year 2008. Growth in this occupation will be restrained as retail companies place more emphasis on sales staff employment levels and increase the number of responsibilities their retail sales worker supervisors and managers have. Furthermore, some companies have begun requiring their sales staff to report directly to upper management personnel, bypassing the department-level manager. However, many job openings are expected to occur as experienced supervisors and managers move into higher levels of management, transfer to other occupations or leave the labor force.

Projected employment growth of retail managers will mirror, in part, the patterns of employment growth in the industries in which they are concentrated. For example, faster than average growth is expected in grocery stores as they expand their selection of merchandise to accommodate customers' desires for one-stop shopping.

Unlike middle- and upper-level management positions, store-level retail supervisors and managers will generally not be affected by restructuring and consolidating that is taking place at the corporate and headquarters level of many retail chain companies.

Earnings

Salaries of retail managers vary substantially, depending upon the level of responsibility, length of service, and type, size and location of the firm.
Supervisors or managers of sales workers in the retail trade industry who usually work full time have median annual earnings of $29,570. The middle

50 percent earn between $21,850 and $42,640. The top 10 percent earn more than $71,910, and the lowest 10 percent earn less than $12,900.

Compensation systems vary by type of establishment and merchandise sold. Many managers receive a commission or a combination of salary and commission. Under a commission system, retail managers receive a percentage of department or store sales. These systems offer managers the opportunity to significantly increase their earnings, but they may find that their earnings depend on their ability to sell their product and the condition of the economy. Those managers who sell large amounts of merchandise are often rewarded with bonuses and awards and receive recognition throughout the store or chain.

Retail managers receive typical benefits, and, in some cases, stock options. In addition, retail managers are generally able to buy their store's merchandise at a discount.

Related Occupations

Retail supervisors and managers serve customers, supervise workers and direct and coordinate the operations of an establishment. Others with similar responsibilities include managers in wholesale trade, hotels, banks and hospitals.

Sources of Additional Information

Information on employment opportunities for retail managers may be obtained from the employment offices of various retail establishments or State employment service offices.

General information on management careers in retail establishments is available from:

* National Retail Federation, 325 7th St., Suite 1100, Washington, DC 20004. www.nrf.com

* International Mass Retail Association, 1700 N. Moore St., Suite 2250, Arlington, VA 22209-1998. www.imra.org

Information on management careers in grocery stores and schools offering related programs is available from:
* Food Marketing Institute, 800 Connecticut Ave. NW, Publications Dept., Washington, DC 20006-2701. www.fmi.org

Information about management careers and training programs in the motor vehicle dealers industry is available from:

* National Automobile Dealers Association, Communications/Public Relations Dept., 8400 Westpark Dr., McLean, VA 22102-3591. www.nada.org Information about management careers in convenience stores is available from:

* National Association of Convenience Stores, 1605 King St., Alexandria, VA 22314-2792. Information about management careers in service stations is available from:

* Service Station Dealers of America, 9420 Annapolis Rd., Suite 307, Lanham, MD 20706. www.ssda-at.org

Retail Sales Workers

Significant Points

* Good employment opportunities are expected due to the need to replace the large number who leave the occupation each year.

* Most salespersons can expect to work some evening and weekend hours, and longer than normal hours may be scheduled during Christmas and other peak retail periods.

* Plentiful opportunities for part-time work exist.

Nature of the Work

Whether selling shoes, computer equipment or automobiles, retail sales workers assist customers in finding what they are looking for and try to interest them in the merchandise. This may be done by describing a product's features, demonstrating its use or showing various models and colors. For some sales jobs, particularly those selling expensive and complex items, special knowledge or skills are needed. For example, workers who sell automobiles must be able to explain to customers the features of various models, the meaning of manufacturers' specifications and the types of options and financing that are available.

Consumers, who spend millions of dollars a day on merchandise, often form their impressions of a store by evaluating its sales force. Therefore, retailers are increasingly stressing the importance of providing courteous and efficient service in order to remain competitive. For example, when a customer wants an item that is not on the sales floor, the sales worker may check the stockroom, place a special order or call another store to locate the item.

In addition to selling, most retail sales workers, especially those who work in department and apparel stores, make out sales checks, receive cash, check and charge payments, bag or package purchases and give change and receipts. Depending on the hours they work, retail sales workers may have to open or close cash registers. This may include counting the money, separating charge slips, coupons and exchange vouchers and making deposits at the cash office. Sales workers are often held responsible for the contents of their registers, and repeated shortages are cause for dismissal in many organizations.

Sales workers may also handle returns and exchanges of merchandise, perform gift-wrapping services, and keep their work areas neat. In addition, they may help stock shelves or racks, arrange for mailing or delivery of purchases, mark price tags, take inventory, and prepare displays.
Frequently, sales workers must be aware of not only the promotions their store is sponsoring, but also those that are being sponsored by competitors. Also, salespersons must often recognize possible security risks and know how to handle such situations.

Although most sales workers have many duties and responsibilities in jobs selling standardized articles such hardware, linens and housewares, they often do little more. than take payments and wrap purchases.

Working Conditions

Most sales workers in retail trade work in clean, comfortable, well-lit stores. However, they often stand for long periods and may need supervisory approval to leave the sales floor.

The Monday through Friday, 9 to 5 work week is the exception, rather than the rule, in retail trade. Most salespersons can expect to work some evening and weekend hours, and longer than normal hours may be scheduled during Christmas and other peak retail periods. In addition, most retailers restrict the use of vacation time from Thanksgiving until early January.

This job can be rewarding for those who enjoy working with people. However, patience is required when the work is repetitious and the customers are demanding.

Employment

Retail sales workers hold about 4.6 million jobs. They work in stores ranging from small specialty shops employing several workers to giant department stores with hundreds of salespersons. In addition, some are self-employed representatives of direct sales companies and mail-order houses. The largest employers of retail sales workers, however, are department stores, clothing and accessories stores, furniture and home furnishing stores and motor vehicle dealers.

This occupation offers many opportunities for part-time work and is especially appealing to students, retirees and others looking to supplement their income. However, most of those selling "big ticket" items such as cars, furniture and electronic equipment work full-time and have substantial experience.

Because retail stores are found in every city and town, employment is distributed geographically in much the same way as the population.
Training, Other Qualifications and Advancement

There usually are no formal education requirements for this type of work, although a high school diploma or equivalent is increasingly preferred. Employers look for persons who enjoy working with people and have the tact and patience to deal with difficult customers. Among other desirable characteristics are an interest in sales work, a neat appearance and the ability to communicate clearly and effectively. The ability to speak more than one language may be helpful for employment in stores in communities where people from various cultures tend to live and shop. Before hiring a sales worker, some employers may conduct a background check, especially for a job selling high-priced items.

In most small stores, an experienced employee or the proprietor instructs newly hired sales personnel in making out sales checks and operating cash registers. In large stores, training programs are more formal and usually conducted over several days. Topics usually discussed are customer service, security, the store's policies and procedures and how to work a cash register. Depending on the type of product they are selling, they may be given additional specialized training by manufacturers' representatives. For example, those working in cosmetics receive instruction on the types of products available and for whom the cosmetics would be most beneficial. Likewise, sales workers employed by motor vehicle dealers may be required to participate in training programs designed to provide information on the technical details of standard and optional equipment available on new models. Because providing the best service to customers is a high priority for many employers, employees are often given periodic training to update and refine their skills.

As salespersons gain experience and seniority, they usually move to positions of greater responsibility and may be given their choice of

departments. This often means moving to areas with potentially higher earnings and commissions. The highest earnings potential is usually found in selling big-ticket items. This type of position often requires the most knowledge of the product and the greatest talent for persuasion.

Traditionally, capable sales workers without college degrees could advance to management positions, but today, large retail businesses generally prefer to hire college graduates as management trainees, making a college education increasingly important. Despite this trend, capable employees without college degrees should still be able to advance to administrative or supervisory positions in large establishments.

Opportunities for advancement vary in small stores. In some establishments, advancement is limited because one person, often the owner, does most of the managerial work. In others, however, some sales workers are promoted to assistant managers.

Retail selling experience may be an asset when applying for sales positions with larger retailers or in other industries such as financial services, wholesale trade or manufacturing.

Job Outlook

As in the past, employment opportunities for retail sales workers are expected to continue to be good because of the many job openings created each year due to the need to replace the large number of workers who transfer to other occupations or leave the labor force. Additional openings will be created by growth in employment of retail sales workers, which is expected to increase about 10-20% for all occupations through the year 2008 due to anticipated growth in retail sales created by a growing population. There will continue to be many opportunities for part-time workers, and demand will be strong for temporary workers during peak selling periods such as the Christmas season.

During economic downturns, sales volumes and the resulting demand for sales workers generally decline. Purchases of costly items such as cars, appliances and furniture tend to be postponed during difficult economic times. In areas of high unemployment, sales of many types of goods decline. However, because turnover of sales workers is usually very high, employers can often control employment simply by not replacing all those who leave.

Earnings

The starting wage for many retail sales positions is the Federal minimum wage, which is $6.15 an hour. In some areas where employers are having difficulty attracting and retaining workers, wages are higher than the established minimum.

Compensation systems vary by type of establishment and merchandise sold. Sales workers receive either hourly wages, commissions or a combination of wages and commissions. Under a commission system, salespersons receive a percentage of the sales that they make. This system offers sales workers the opportunity to significantly increase their earnings, but they may find their earnings depend on their ability to sell their product and the ups and downs of the economy. Employers may use incentive programs such as awards, banquets and profit-sharing plans to promote teamwork among the sales staff.
Benefits may be limited in smaller stores, but in large establishments benefits are usually comparable to those offered by other employers. In addition, nearly all sales workers are able to buy their store's

merchandise at a discount, with the savings depending upon the type of
merchandise.

Related Occupations

Sales workers use sales techniques coupled with their knowledge of
merchandise to assist customers and encourage purchases. These skills are
used by people in a number of other occupations, including manufacturers
and wholesale trade sales representatives, service sales representatives,
securities and financial services sales representatives, counter and rental
clerks, real estate sales agents, purchasers and buyers, insurance agents,
brokers and cashiers.

Sources of Additional Information

Information on careers in retail sales may be obtained from the personnel
offices of local stores or from State merchants' associations.

General information about retailing is available from:
* National Retail Federation, 325 7th St. NW, Suite 1000, Washington, DC
20004. www.nrf.com

* International Mass Retail Association, 1700 N. Moore St., Suite 2250,
Arlington, VA 22209-1998. www.imra.org

Information about retail sales employment opportunities is available from:

* United Food and Commercial Workers International Union, Education Office,
1775 K St. NW, Washington, DC 20006-1502. www.ufcw.org

Information about training for a career in automobile sales is available
from:

* National Automobile Dealers Association, Communications/Public Relations
Dept., 8400 Westpark Dr., McLean, VA 22102-3591. www.nada.org

Total Jobs and Job Openings, Retail Positions
2001, 2005

	Employment 2001	Employment 2005	Employment Growth in Total Jobs 2001-2005
Buyers *	178,500	178,000	-1,000
Cashiers	3,368,000	3,567,000	281,000
Counter and Rental Clerks	412,320	451,000	55,500
Retail Salespersons	4,190,000	4,374,000	266,000
Order Fillers **	225,000	231,000	8,000
Stock Clerks	1,781,000	1,800,000	21,000
Traffic, Shipping and Receiving Clerks	815,000	827,000	14,000
Order Clerks	328,500	337,000	13,500

	Percent Growth as a Percent 2001-2005	Average Annual Job Openings Due to Growth and Replacement 2001-2005
Buyers *	-0.5%	3,000
Cashiers	8.5%	1,110,000

Counter and Rental Clerks	14.0%	130,000
Retail Salespersons	6.4%	1,236,000
Order Fillers **	3.5%	38,000
Stock Clerks	1.2%	347,000
Traffic, Shipping and Receiving Clerks	1.7%	163,000
Order Clerks	4.1%	56,000

* Wholesale and retail buyers of non-food items
** Wholesale and retail sales

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SPECIAL FEATURES: Table
INDUSTRY NAMES: Retailing non-food
PRODUCT NAMES: Retail stores, other (590000); Employment (981300)
GEOGRAPHIC NAMES: North America (NOAX); United States (USA)

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DIALOG(R)File   9:Business & Industry(R)
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02769583 Supplier Number: 25269453   (THIS IS THE FULLTEXT)
 No end in sight for superlative sales. (Lengthening its Lead Financials)
 (Wal-Mart)
DSN Retailing Today, v 41, n 11, p 86(2)
June 10, 2002
DOCUMENT TYPE: Journal ISSN: 0012-3587 (United States)
LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 1066

TEXT:
Troy, Mike

Wal-Mart celebrated its 40th anniversary in fine fashion this year with the
distinction of becoming the world's largest company. Now, as it sits atop
the Fortune 500 list, the company is so well positioned to generate
additional sales growth that the revenue gap between it and the world's
other largest companies is widening to never-before-seen levels.

Wal-Mart's annual revenues of $219 billion already exceed the world's
second-largest company, Exxon Mobil, by $28 billion, as well as the world's
third-largest company, General Motors, by $52.5 billion. Wal-Mart is
expected to pile on additional sales volume this year, while analysts
forecast modest or declining revenue growth for many of the other top
Fortune 500 companies.

This year, Wal-Mart's sales are projected to increase 14% to $248.6
billion, while profits are forecast to grow 18% to nearly $8 billion.
Considerable progress toward these targets has already been achieved
during the first quarter as sales increased 14.4% to $55 billion through a
combination of an 8.1% same store sales increase and rapid new store
construction. Earnings per share increased 20.2% to $0.37 and exceeded
analysts' consensus estimates by a penny.

Estimates for Wal-Mart's sales growth in 2003 and the following three years assume a low-double-digit percentage increase, but given Wal-Mart's already large sales base, those percentages translate to staggering sales increases of $30 billion in 2003, $32 billion in 2004, $33 billion in 2005 and $35 billion in 2006. If these estimates prove accurate, Wal-Mart will add approximately $161 billion in additional volume during the next five years, virtually assuring it retains its No. 1 ranking on the Fortune 500 list even in the event of unlikely mega-mergers between the world's largest oil companies or automobile manufacturers.

During that same five-year time frame profits also are forecast to increase substantially, with analysts assuming they will grow at a rate slightly faster than sales. Profits are projected to increase by $1 billion . in 2003, $1.1 billion in 2004, $1.25 billion in 2005 and $1.4 billion in 2006. The end result is net income nearly doubling from last year's $6.7 billion to approximately $12.7 billion by the end of 2006.

Even though the projected volume increases are hard to fathom and unprecedented in the history of commerce, analysts' confidence in Wal-Mart's ability to achieve them runs high. That confidence stems from the proven sales-generating power of Wal-Mart's supercenters, remaining expansion opportunities and the predictability of sales resulting from the additional selling space. Wal-Mart increased its supercenter count to 1,066 units last year by adding 178 new stores. This year, it plans another 185 and is expected to add at least that many supercenters in each of the next five years.

"We are forecasting Wal-Mart supercenter sales to more than double over the next five years to $163 billion in 2006," according to Dan Barry with Merrill Lynch. "Supercenter expansion should continue at a steady clip over the next five years, with Wal-Mart adding approximately 185 new domestic supercenters per year. At this pace, Wal-Mart should approach 2,000 supercenters by the year 2006."

In addition to supercenter expansion that has become very predictable, specific countries within the international division--namely Mexico, Canada and the United Kingdom--also are producing growth that analysts can predict with confidence. "The retail giant continues to leverage its enormous merchandising, marketing, managerial and distribution power to seize market share across retail channels, as well as to tighten its control over the supply chain both in the U.S. and abroad," said Deborah Weinswig with Salomon Smith Barney. "Although (Wal-Mart's) size and aggressive expansion plans may hinder earnings growth relative to historical levels, we believe earnings will still expand at the rate of 14% to 15% per year."

As description defying as Wal-Mart's potential sales and profit numbers have become, there is a chance they could prove conservative, Wal-Mart already is off to a strong start this year and further economic improvement could propel it to a banner year. The chain noted during its first quarter conference call its customer traffic counts are increasing, indicating it is gaining market share, but customers' preference for opening price point merchandise and average tickets suggest they are still spending cautiously.

A strengthening of the economy could result in an increase in Wal-Mart's average ticket as customers spend more and shift toward higher-priced merchandise. In that event Wal-Mart would likely exceed its plan of same store sales in the 5% to 7% range and full-year earnings per share of $1.74 to $1.76.

Longer term, the potential to surpass analysts' estimates exists because

they are based on an understanding of Wal-Mart's business as it exists today, Not included in sales and profit estimates are potential market share gains that might come from recently entered businesses, such as large appliance and automobile sales. Wal-Mart began selling large appliances at 100 stores last year and last month it began a six-month test of automobile sales at five stores.

Future international acquisitions also are not included in sales and profit estimates because the timing and size are unpredictable. Wal-Mart's recent investment in Japanese retailer Seiyu is a good example. Seiyu's sales last year were $8 billion. Wal-Mart has the option to acquire a majority ownership by 2007. However, until it does so, Seiyu's sales and profits won't be reflected in Wal-Mart's financial results, and analysts are not yet including Seiyu's figures in their estimates of Wal-Mart's future sales and profits.
Even if conservative assumptions of Wal-Mart's future growth are used, a scenario is emerging whereby Wal-Mart could be twice the size of the world's second-largest company within the next five years.

WAL-MART'S FIVE-YEAR SALES AND EARNINGS FORECAST

	SALES (Billions)	PROFITS (Billions)
2001	$217.8	6.7
2002	$248.6 *	7.9 *
2003	$278.5 *	8.9 *
2004	$310.2 *	10.1 *
2005	$343.9 *	11.4 *
2006	$378.8 *	12.8 *

* ESTIMATE
SOURCE: COMPANY REPORTS, ANALYSTS' ESTIMATES AND TODAY RESEARCH
Note: Table made from bar graph

2001: A CHART-TOPPING YEAR
(Figures in millions)

COMPANY	SALES	PROFITS
1 Wal-Mart	$219,812	$6,671
2 Exxon Mobil	191,581	15,320
3 General Motors	177,260	601
4 Ford	162,412	(5,453)
5 General Electric	125,913	13,684
6 Citigroup	112,022	14,126
7 ChevronTexaco	99,699	3,288
8 IBM	85,866	7,723
9 Philip Morris	72,944	8,560
10 Verizon Communications	67,190	389
11 American International Group	62,402	5,363
12 AT&T	59,142	7,715
13 Boeing	58,198	2,827
14 Home Depot	53,553	3,044
15 Bank of America	52,641	6,792
16 Fannie Mae	50,803	5,894
17 J.P. Morgan Chase	50,429	1,694
18 Kroger	50,098	1,042
19 Cardinal Health	47,947	857
20 Merck	47,715	7,281

SOURCE: COMPANY REPORTS, ANALYSTS' ESTIMATES AND DSN RETAILING TODAY
RESEARCH CHART ORDER ROUGHLY BASED ON FORTUNE 500 LIST

SPECIAL FEATURES: Table
COMPANY NAMES: WAL-MART STORES INC
INDUSTRY NAMES: Retailing non-food
PRODUCT NAMES: General merchandise stores NEC (539000)
CONCEPT TERMS: All company; All market information; Company forecasts;
   Corporate strategy; Financial data; Number outlets
GEOGRAPHIC NAMES: North America (NOAX); United States (USA)
?

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☐	L128	(l122 or l123 or l124) and L127	3
☐	L127	(l126 or l125) and ((customer$ or client$ or consumer$ or user$) near (ticket or tickets or (purchase near order) or invoice or spreadsheet or receipt))	232
☐	L126	sale$.ab.	2653
☐	L125	sale$.ti.	896
☐	L124	705/40.ccls.	305
☐	L123	707/102.ccls.	2236
☐	L122	707/100.ccls.	1711
		DB=EPAB,JPAB,DWPI,TDBD; PLUR=NO; OP=OR	
☐	L121	l118 and (ticket or tickets or (purchase near order) or invoice or spreadsheet or receipt)	6
☐	L120	l118 and ((customer$ or client$ or consumer$ or user$) near (ticket or tickets or (purchase near order) or invoice or spreadsheet or receipt))	0
☐	L119	l118 and ((invoice$ or receipt$ or voucher$ or ticket$ or (purchase near order$) or bill$ or (payment near stub$) or (paymentment near stub$)) near (history or past or schedule$ or calendar$ or date or month$ or year$))	0
☐	L118	(L116 or L117) and ((client$ or consumer$ or customer$ or user$ or member$ or registrant$) near histor$)	64
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☐	L116	sale$.ab.	43306
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☐	L114	(L110 or L111) and history	311
☐	L113	(L110 or L111) and ((invoice$ or receipt$ or voucher$ or ticket$ or (purchase near order$) or bill$ or (payment near stub$) or (paymentment near stub$)) near (history or past or schedule$ or calendar$ or date or month$ or year$))	60
☐	L112	(L110 or L111) and ((invoice$ or receipt$ or voucher$ or ticket$ or (purchase near order$) or bill$ or (payment near stub$) or (paymentment near stub$)) near (history or past or schedule$ or calendar$ or date or month$ or year$) near (client$ or consumer$ or customer$ or user$ or member$ or registrant$))	5
☐	L111	sale$.ab.	2653
☐	L110	sale$.ti.	896
☐	L109	L108 and ((customer$ or client$ or consumer$ or user$) same (history or profile))	166

10 052 578

☐	L108	L107 and ((customer$ or client$ or consumer$ or user$) same (tree$ or level$ or rank$ or hierarch$))	306
☐	L107	(L102 or L103 or L104 or L105) and ((customer$ or consumer$ or client$ or user$) near sale$)	493
☐	L106	(L102 or L103 or L104 or L105) and ((automotive or car or cars) near sale$)	42
☐	L105	(705/10 |705/11 |705/12 |705/13 |705/14 |705/15 |705/16 |705/17 |705/18 |705/19 |705/20 |705/21 |705/22 |705/23 |705/24 |705/25 |705/26 |705/27 |705/28 |705/29 |705/30 |705/31 |705/32 |705/33 |705/34 |705/35 |705/36 |705/36R |705/36T |705/37).ccls.	4954
☐	L104	(709/203).ccls.	2671
☐	L103	(707/9 |707/10).ccls.	4010
☐	L102	(707/3 |707/4 |707/5).ccls.	4336
☐	L101	(L91 or L92) and L93	15
☐	L100	(L91 or L92) and L97	9
☐	L99	(L91 or L92) and L96	4
☐	L98	(L91 or L92) and L95	5
☐	L97	(L91 or L92) and L94	9
☐	L96	((customer$ or client$ or consumer$ or user$) near (invoice or spreadsheet or receipt))	2866
☐	L95	((customer$ or client$ or consumer$ or user$) near (purchase near order))	147
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☐	L92	(L89 or L90) and ((customer$ or client$ or consumer$ or user$) same (tree$ or level$ or rank$ or hierarch$))	63
☐	L91	(L89 or L90) and ((customer$ or client$ or consumer$ or user$) same (history or profile))	35
☐	L90	((automotive or car or cars) near sale$)	176
☐	L89	L88 and ((automotive or car or cars) near sale$)	18
☐	L88	((customer$ or consumer$ or client$ or user$) near sale$)	2844
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☐	L85	wallace-shawn.in.	1
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☐	L82	kennan-william-b.in.	0
☐	L81	magouirk-brent.in.	0
☐	L80	L79 and (screen or display$ or interfac$ or graphic or graphics)	16
☐	L79	L78 and (dealership or dealerships or car or cars or automobile$)	16
☐	L78	L77 and (enquir$ or inquir$ or search$ or quer$ or request$)	89
		L76 and ((client$ or user$ or customer$ or consumer$) same (timestamp or (time	

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☐	L76	L75 and ((client$ or user$ or customer$ or consumer$) near (proposal$ or receipt$ or order or orders or deal or deals or ticket or tickets or agreement or agreements or invoice or invoices))	113
☐	L75	(L61 or L62 or L63 or L64 or L65 or L66 or L67) and (sale or sales).ab.	269
☐	L74	L73 and (enquir$ or inquir$ or search$ or quer$ or request$)	19
☐	L73	L72 and (screen or display$ or interfac$ or graphic or graphics)	20
☐	L72	L70 and ((client$ or user$ or customer$ or consumer$) same (timestamp or (time adj1 stamp) or time-stamp or (real adj1 time) or realtime or real-time or month$ or year$ or date$))	20
☐ ·	L71	L70 and (dealership or dealerships or car or cars or automobile$)	7
☐	L70	L68 and ((client$ or user$ or customer$ or consumer$) near (proposal$ or receipt$ or order or orders or deal or deals or ticket or tickets or agreement or agreements or invoice or invoices))	23
☐	L69	L68 and ((client$ or user$ or customer$ or consumer$) near (proposal$ or receipt$ or order or orders or deal or deals or ticket or tickets or agreement or agreements))	23
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☐	L66	(709/203).ccls.	2671
☐	L65	(707/104.1).ccls.	2463
☐	L64	(707/100).ccls.	1711
☐	L63	(707/10).ccls.	3564
☐	L62	(707/2 |707/3 |707/4 |707/5).ccls.	5110
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☐	L60	3609248 3594503 3652795 5799173 5950172 6298352 6668281 6643774 5835575 5949856 5687971 6282517 5634127 5835896 5848412 5991395 6070798 6115040 6223220 6223220 6243691 6353483 6362895 6381032 6396593).pn. (6429947 6453302 6647373 6718263 4546434 5983273 6199114 6253369 6343273 6430540 6442550 6460163 6598167 6606708 6408263 5706437 6076108 6085220 5945655 6055519 5909492 6336135 5692030 6453317 6584074 6049822 6460077 6604089 6631356 4624481 6430177 5260986 6332161 6344853 6493871 6078679 6255943 6603396 6101483 6161145 5918191 5926798 5937048 5962834 6175920 6188673 6256670 6473407 6490620 5452221).pn. (6292830 6389402 6385646 6446045 5769269 6119227 6246771 6351688 5804803 5971277 6016504 6134533 6408281 6415265 6460072 6535913 6691093 6282522 5644118 5883940 5949043 6003762 6003767 6097792 4982337 5966698 6253193 6363488 6427140 6205446 6032184 5253166 5793849 6038597 6195694 6260048 6353446 6064982 5621797 6480859 6216108 6216108 4949373 6408292 5838682 5835856 6122631 6085169 6477533 6408283)	991
☐	L59	L58 and (trade-in or (trade adj1 in))	8
☐	L58	L57 and ((automobile or automobiles or car or cars) same (sale or sales))	318
☐	L57	(automobile or automobiles or car or cars).ab.	26263
☐	L56	L55 and (trade-in or (trade adj1 in))	2
☐	L55	L51 and ((car or cars or automobile or automobiles) same (sale or sales))	25
☐	L54	L51 and (client$ or consumer$ or customer$).ab.	14
☐	L53	L51 and sale$.ab.	1
☐	L52	L51 and sale$.ti.	1
☐	L51	L50 and (network or (computer adj1 system) or computers or networks or internet or www or online or on-line or (on adj1 line) or (world adj1 wide adj1 web) or page or pages or site or sites or (web adj1 (site$ or page$)))	1793
☐	L50	(car or cars or automobile or automobiles).ti.	39780
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☐	L39	6067525.pn.	1
☐	L38	l36 and ((object near oriented or object) near (cpu$ or computer$ or terminal$ or	7

☐	L37	processor$)) L36 and ((security or authenticat$ or authoriz$) near (hierarc$ or topmost or parent or tree$ or branch$ or level or inheritance or child))	8
☐	L36	(l29 or l30 or l31 or l32 or l33 or l34 or l35) and ((hierarch$ or tree$ or roots or parent or child or branch$) near (cpu$ or computer$ or terminal$ or processor$))	110
☐	L35	713/166.ccls.	144
☐	L34	709/225.ccls.	978
☐	L33	709/203.ccls.	2671
☐	L32	707/100.ccls.	1711
☐	L31	707/10.ccls.	3564
☐	L30	707/103x.ccls.	31
☐	L29	707/1-2.ccls.	3197

DB=USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=NO; OP=OR

☐	L28	L27 and ((security or authenticat$ or authoriz$) near (hierarc$ or topmost or parent or tree$ or branch$ or level or inheritance or child))	3
☐	L27	l26 and ((object near oriented or object) near (cpu$ or computer$ or terminal$ or processor$))	25
☐	L26	L23 and (security or authoriz$ or authenticat$)	531
☐	L25	L24 and (security or authoriz$ or authenticat$)	3
☐	L24	(l1 or l2) and ((hierarch$ or tree$ or roots or parent or child or branch$) near (cpu$ or computer$ or terminal$ or processor$))	6
☐	L23	((hierarch$ or tree$ or roots or parent or child or branch$) near (cpu$ or computer$ or terminal$ or processor$))	7797

DB=USPT; PLUR=NO; OP=OR

☐	L22	L21 and (node or nodes or child)	11
☐	L21	L20 and (root or roots)	16
☐	L20	L19 and (level or levels)	51
☐	L19	L18 and (security near polic$)	53
☐	L18	L17 and (permission or authenticat$ or authoriz$)	174
☐	L17	L11 and hierarch$	203
☐	L16	L15 and child	11
☐	L15	L14 and parent	17
☐	L14	L13 and (authenticat$ or authoriz$)	65
☐	L13	L12 and (security near policy)	71
☐	L12	L11 and (hierarch$ or tree$ or roots or parent or child or branch$)	852
☐	L11	security.ti.	6244
☐	L10	L8 and (authenticat$ or authoriz$)	20
☐	L9	L8 and (authenticat$ or authoriz$).ti.	1
☐	L8	L7 and (hierarch$ or tree$ or roots or parent or child or branch$)	22
☐	L7	(L1 or L2) and security.ab.	47

☐   L6   (L1 or L2) and security.ti.   4

☐   L5   L4 and (security or authenticat$ or authoriz$).ti.   4

☐   L4   L3 and (hierarch$ or tree$ or roots or parent or child or branch$)   39

☐   L3   (L1 or L2) and (security or authenticat$ or authoriz$ or access$).ti.   85

☐   L2   (L1).pn. (5734902 5892946 5907704 6052367 6185606 5230051 5778213
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           6157705 6199058 6205476 6212565 6216153 6219693 6212565 6216153
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           5852731 5854887 5857102 5857188 5881238 5884028 5884316 5887172
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           5583995 5634122 5652908 5664106 5692191 5706431 5732240 5742819
           5758078 5764961 5802590).pn.

☐   L1   (6609084 5796393 6020884 6433795 5805823 5978566 5790809 5819030
           5872930 5913032 5778185 5793968 6138251 6336133 6336135 6381627
           6411966 6469998 6738975 6038596 5978848 5787254 5870767 5877757
           6008814 6026437 6041326 6044385 6052716 6058395 6131110 6192383   1062
           6243722 6178460 6209027 6237030 6334145 6413100 5974446 5805804
           5682534 5877759 6092114 6179713 5566069 6064943 5699244 5911776
           6112244 6018762)

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1   "Graphical marionette" (abstract only)

Carol M. Ginsberg, Delle Maxwell

January 1984 **ACM SIGGRAPH Computer Graphics**, Volume 18 Issue 1

Full text available: 🗎 pdf(3.92 MB)   Additional Information: full citation, abstract

Many person-modelling 3-D animation systems are currently being developed, but often suffer from confusing and elaborate user interfaces. Given over 200 degrees of freedom, the human form is capable of such intricate motion that its specification and display presents considerable difficulty to both animators and animation systems designers. Given such difficulties with single figures, the orchestration of several in parallel remains a major challenge. In pursuit of understanding thoroughly this ...

2   "King Kong versus Godzilla": a team approach to training on Internet resources

Vicki L. Pengelly, Barry N. Brown

December 1992 **Proceedings of the 20th annual ACM SIGUCCS conference on User services**

Full text available: 🗎 pdf(632.45 KB)   Additional Information: full citation, index terms

3   3D balance in legged locomotion: modeling and simulation for the one-legged case (abstract only)

Seshashayee S. Murthy, Marc H. Raibert

January 1984 **ACM SIGGRAPH Computer Graphics**, Volume 18 Issue 1

Full text available: 🗎 pdf(3.92 MB)   Additional Information: full citation, abstract

This paper explores the notion that the motion of dynamically stable 3D legged systems can be decomposed into a planar part that accounts for large leg and body motions that provide locomotion, and an extra-planar part that accounts for subtle corrective motions that maintain planarity. The large planar motions raise and lower the legs to achieve stepping, and they propel the system forward. The extra-planar motions ensure that the legged system remains in the plane. A solution of this form is s ...

4   A buddy model of security for mobile agent communities operating in pervasive scenarios

John Page, Arkady Zaslavsky, Maria Indrawan

January 2004 **Proceedings of the second workshop on Australasian information**

10\052,575

**security, Data Mining and Web Intelligence, and Software
Internationalisation - Volume 32**
Full text available: 📄 pdf(344.53 KB)   Additional Information: full citation, abstract, references

This paper examines the security aspects of different pervasive scenarios involving agent communities evolved using multi agent systems (MAS). It describes the motivation and the objectives behind the development of these agent communities and analyses the security vulnerabilities, which arise within them. To counter these vulnerabilities, the paper proposes a Buddy model of security for the agent community. In this model, every agent protects its neighbour within the community, thereby sharing ...

Keywords: community, malicious, mobile agents (MA), security, vulnerability

5 A chat room assignment for teaching network security
W. Garrett Mitchener, Amin Vahdat
February 2001 **ACM SIGCSE Bulletin , Proceedings of the thirty-second SIGCSE
technical symposium on Computer Science Education**, Volume 33 Issue 1
Full text available: 📄 pdf(455.57 KB)   Additional Information: full citation, abstract, references, citings, index terms

This paper describes a chat room application suitable for teaching basic network programming and security protocols. A client/server design illustrates the structure of current scalable network services while a multicast version demonstrates the need for efficient simultaneous distribution of network content to multiple receivers (e.g., as required by video broadcasts). The system also includes implementations of two security protocols, one similar to Kerberos and another based on public key enc ...

6 A comparative usability evaluation of user interfaces for online product catalog
Ewa Callahan, Jürgen Koenemann
October 2000 **Proceedings of the 2nd ACM conference on Electronic commerce**
Full text available: 📄 pdf(576.85 KB)   Additional Information: full citation, references, citings, index terms

Keywords: e-commerce, electronic catalogs, human-computer, interaction, usability evaluation, user interfaces

7 A hybrid approach to structure-from-motion (abstract only)
Aaron Bobick
January 1984 **ACM SIGGRAPH Computer Graphics**, Volume 18 Issue 1
Full text available: 📄 pdf(3.92 MB)   Additional Information: full citation, abstract

A method is presented for computing structure from the motion of rigid objects which are rotating about a fixed axis. The input consists of two discrete frames containing the positions and instantaneous direction vectors of three points in orthographic projection. Because only the direction of the velocity vectors and not their magnitudes is needed, the method is insensitive to errors in velocity magnitude estimation. This type of computation could be important in recovering the 3-dimensional st ...

8 A multi-national sales planning system in APL
Steven I. Promisel
July 1992 **ACM SIGAPL APL Quote Quad , Proceedings of the international conference
on APL**, Volume 23 Issue 1
Full text available: 📄 pdf(628.24 KB)   Additional Information: full citation, abstract, references, index terms

A large multi-national chemical company has been using an APL-based logistics planning system called LOGISTICS*PLUS since 1984. Over the past five years, the original US-based system was extended into Canada and Europe. Recently, business units in Europe asked STSC to develop a sales planning system for LOGISTICS*PLUS. The developed system is used by many people with minimal training from many different countries. The software needed to be easy to access and easy to use. The purpose of this ...

9 A multiple track animator system for motion synchronization (abstract only)
D. Fortin, J. F. Lamy, D. Thalmann
January 1984 **ACM SIGGRAPH Computer Graphics**, Volume 18 Issue 1

Full text available: pdf(3.92 MB)   Additional Information: full citation, abstract

MUTAN (MUltiple Track ANimator) is an interactive system for independently animating three-dimensional graphical objects. MUTAN can synchronize different motions; it is also a good tool for synchronizing motion with sound, music, light or smell. To indicate moments in time, marks are associated with appropriate frame numbers. MUTAN enables the marks to be manipulated. An animator can also adjust one motion without modifying the others. To make this possible, MUTAN handles several tracks at a tim ...

10 A position paper on computing and communications
Jack B. Dennis
May 1968 **Communications of the ACM,** Volume 11 Issue 5

Full text available: pdf(1.16 MB)   Additional Information: full citation, references, citings

Keywords: communications services, computer installation management, computing and free enterprise, computing economics, distributed data base, government regulation, information networks, information systems, program leasing

11 A resource management framework for priority-based physical-memory allocation
Kingsley Cheung, Gernot Heiser
January 2002 **Australian Computer Science Communications , Proceedings of the seventh Asia-Pacific conference on Computer systems architecture - Volume 6**, Volume 24 Issue 3
Full text available: pdf(1.32 MB)   Additional Information: full citation, abstract, references, index terms

Most multitasking operating systems support scheduling priorities in order to ensure that processor time is allocated to important or time-critical processes in preference to less important ones. Ideally this would prevent a low-priority process from slowing the execution of a high-priority one. In practice, strict prioritisation is undermined by a lack of suitable allocation policy for resources other than CPU time. For example, a low priority process may degrade the execution speed of a high-p ...

12 A review of the APL94 conference in Antwerp, Belgium
Bill Koko
December 1994 **ACM SIGAPL APL Quote Quad**, Volume 25 Issue 2
Full text available: pdf(783.67 KB)   Additional Information: full citation, index terms

13 A structural view of the Cedar programming environment
Daniel C. Swinehart, Polle T. Zellweger, Richard J. Beach, Robert B. Hagmann
August 1986 **ACM Transactions on Programming Languages and Systems (TOPLAS)**, Volume 8 Issue 4

Full text available: pdf(6.32 MB)   Additional Information: full citation, abstract, references, citings, index terms

This paper presents an overview of the Cedar programming environment, focusing on its overall structure—that is, the major components of Cedar and the way they are organized. Cedar supports the development of programs written in a single programming language, also called Cedar. Its primary purpose is to increase the productivity of programmers whose activities include experimental programming and the development of prototype software systems for a high-performance personal computer. T ...

14 A Survey of Techniques for Synchronization and Recovery in Decentralized Computer Systems
Walter H. Kohler
June 1981 **ACM Computing Surveys (CSUR)**, Volume 13 Issue 2

Full text available: pdf(3.33 MB)   Additional Information: full citation, references, citings, index terms

15 Accelerated force computation for physics-based information visualization
Ming C. Hao, Umeshwar Dayal, Daniel Cotting, Thomas Holenstein, Markus Gross
May 2003 **Proceedings of the symposium on Data visualisation 2003**

Full text available: pdf(2.13 MB)   Additional Information: full citation, abstract

Visualization of similarity is an emerging technique for analyzing relation-based data sets. A common way of computing the respective layouts in an information space is to employ a physics-based mass-spring system. Force computation, however, is costly and of order N^2. In this paper, we propose a new acceleration method to adopt a well-known optimized force-computation algorithm which drastically reduces the computation time to the order of $N \log N$. The basic idea is to derive a two-p ...

16 Access control for large collections
H. M. Gladney
April 1997 **ACM Transactions on Information Systems (TOIS)**, Volume 15 Issue 2

Full text available: pdf(482.88 KB)   Additional Information: full citation, abstract, references, citings, index terms, review

Efforts to place vast information resources at the fingertips of each individual in large user populations must be balanced by commensurate attention to information protection. For distributed systems with less-structured tasks, more-diversified information, and a heterogeneous user set, the computing system must administer enterprise-chosen access control policies. One kind of resource is a digital library that emulates massive collections of paper and other physical media for clerical, en ...

Keywords: access control, digital library, document, electronic library, information security

17 ACM forum
Robert L. Ashenhurst
August 1988 **Communications of the ACM**, Volume 31 Issue 9

Full text available: pdf(1.67 MB)   Additional Information: full citation, references, index terms

18 ACM forum: on the CIU
May 1975 **Communications of the ACM**, Volume 18 Issue 5

Full text available: 📄 pdf(378.39 KB) Additional Information: <u>full citation</u>, <u>references</u>, <u>index terms</u>

19 <u>Adapting optical-flow to measure object motion in reflectance and x-ray image</u>
<u>sequences (abstract only)</u>
Nancy Cornelius, Takeo Kanade
January 1984 **ACM SIGGRAPH Computer Graphics**, Volume 18 Issue 1
Full text available: 📄 <u>pdf(3.92 MB)</u>   Additional Information: <u>full citation</u>, <u>abstract</u>

This paper adapts Horn and Schunck's work on optical flow to the problem of determining
arbitrary motions of objects from 2-dimensional image sequences. The method allows for
gradual changes in the way an object appears in the image sequence, and allows for flow
discontinuities at object boundaries. We find velocity fields that give estimates of the
velocities of objects in the image plane. These velocities are computed from a series of
images using information about the spatial and temporal bri ...

20 <u>An affordable approach to an architectural computer system</u>
Donald E. Bergeson, Robert Babbin
January 1977 **Proceedings of the 14th conference on Design automation**
Full text available: 📄 <u>pdf(968.68 KB)</u>   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>, <u>index terms</u>

Analysis of information flows, and a review of periodically performed tasks in an architect's
office, indicate many functions that could be expedited and enhanced with the aid of a
major restructuring that would include a carefully planned, modular, computer system.
Staged investment in hardware and software is recommended. A conservative approach
indicates computer utilization first in record keeping, then in engineering and text
manipulation, and finally in graphics and simulat ...

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